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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/722,887	11/26/2003	Thomas M. Laney	87430CPK	1673

7590

12/13/2006

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EXAMINER

BUTLER, PATRICK

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 12/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/722,887	Applicant(s) LANEY ET AL.	
	Examiner Patrick Butler	Art Unit 1732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 19,21-26 and 29-39 is/are pending in the application.
- 4a) Of the above claim(s) 31-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 19,21-26,29 and 30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 29 September 2006 has been entered.

Response to Amendment

The Applicant's Amendments and Accompanying Remarks, filed 29 September 2006, have been entered and have been carefully considered. Claims 31-39 are new, Claims 19, 22, 23, and 25 are amended, no Claims are canceled, and Claims 19, 21-26, and 29-39 are pending.

Despite these advances, the invention as currently claimed is not found to be patentable for reasons herein below.

Election/Restrictions

*CAT
12/11/06*
Newly submitted claim^{21-39 are} directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Election was made **without** traverse in the reply filed on 20 June 2005 as previously described in the Elections/Restrictions section of the Office Action dated 22 September 2005.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for

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prosecution on the merits. Accordingly, claims 31-39 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Method of making polylactic-acid-based sheet material.

The disclosure is objected to because of the following informalities: On page 11, line 10, "thickness, if an extruded monolayer" appears to contain a typographical error, which would read "thickness of an extruded monolayer" when corrected.

Appropriate correction is required.

The use of the trademarks BLANK FIXE MICRO™, NATUREWORKS™, AEROSIL MOX 80®, and others indicated with ® have been noted in this application. Each should be capitalized (each letter of the word(s)) wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 19 and 21-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Morita et al. (US Patent No. 5,405,887).

With respect to Claim 19, Morita teaches a method of making a porous film by adding from 40-250 parts finely-powdered filler to 100 parts polylactic acid-based resin composition and melting (blending void initiating particles into a melt comprising a polylactic-acid-based material wherein the void initiating particles are employed in an amount of 30-50% by volume in feedstock) (see Abstract). The blend is melt-extruded through a flat die to form an extrudate (extruding the polylactic-acid-based materials as a monolayer film to form a sheet comprising a layer of a polylactic-acid-based material containing inorganic particles) (see col. 7, lines 7-27). The sheet is stretched biaxially from 1.1 to 10 times (stretching the sheet biaxially, in which draw ratios in both the longitudinal and transverse directions are in the range of 2 to 5 times) (see col. 7, lines 28-32), which would necessarily cause the area ratio between the non-stretched sheet and the biaxially stretched film to be in the range of 1.2 to 100 (9 to 20). The film would have pores (title). The sheet would necessarily be microvoided and have a total adsorbent capacity of at least about 14 cc/m² principally because it is made by the same process as claimed.

With respect to Claim 21, Morita's sheet is stretched at a temperature of $T_g + 50$ °C such as 60 °C (under 75 °C) (see col. 7, lines 35-39 and col. 10, lines 44-46).

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With respect to Claims 22 and 23, Morita's average particle diameter is 0.3 to 4 μm (see Abstract), which reads on the claimed range of 0.1-1 μm (Claim 22) and 0.1-0.6 μm (Claim 23).

With respect to Claim 24, the film thickness is from 10 to 300 μm (see col. 7, lines 40-44), which reads on the claimed range of 25-400 μm .

With respect to Claim 25, Morita teaches a method of making a porous film by adding from 40-250 parts finely-powdered filler to 100 parts polylactic acid-based resin composition, which would necessarily overlap 45-75 weight % filler (see Abstract). The filler is inorganic (see col. 6, lines 28-38).

With respect to Claim 26, Morita teaches using barium sulfate, calcium carbonate, zinc oxide, titanium dioxide, and silica (see col. 6, lines 28-38).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita et al. (US Patent No. 5,405,887) as applied to Claim 19 above, and further in view of Kanai et al. (*Film Processing*, pages 322 and 323).

With respect to Claim 29, Morita teaches the method of making film as previously described. Morita does not appear to expressly teach stretching the sheet in both directions simultaneously.

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Kanai et al. teach simultaneous biaxial stretching of film (see page 322, § 6.3.2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kanai's simultaneous biaxial stretching in the process of Morita in order to have good processability and simultaneous relaxation (see page 322, § 6.3.2).

With respect to Claim 30, Morita teaches the method of making film as previously described. Morita does not appear to expressly teach stretching the sheet in a machine direction first followed by a transverse direction.

Kanai et al. teach stretching film in a machine direction first followed by a transverse direction (see page 323, *Sequential Biaxial Stretching* sections).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kanai's stretching film in a machine direction first followed by a transverse direction in the process of Morita in order to avoid the shortcomings of the other biaxial stretching: a) simultaneous biaxial stretching - unsuitable for high-speed processing and b) TD then LD (transverse then machine direction) biaxial stretching - uniformly stretching wide film (see page 323, second paragraph and second-from-last paragraph).

Claims 19, 21-26, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al. (US Patent No. 5,443,780) in view of Laney et al. (US Patent No. 6,379,780).

With respect to Claim 19, Matsumoto teaches extruding a film from polyester, specifically extruded polylactic acid, and with biaxial stretching (extruding polylactic-acid

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based materials as a monolayer film, and stretching the sheet biaxially) (see col. 1, lines 7-9 and col. 4, lines 17-29). Matsumoto's film does not disclose additional layers and is necessarily monolayer as claimed (see col. 1, lines 36-51; col. 3, lines 17-57; and col. 4, lines 17-29). Matsumoto teaches biaxially stretching 2.5 x 2.5 (stretching the sheet biaxially in which both draw ratios in the longitudinal and transverse directions are in the range of 2 to 5 times) (see col. 3, lines 42 and 43).

However, Matsumoto does not appear to explicitly teach that each ratio is at least three, which would cause the area ratio between the non-stretched sheet and the biaxially stretched film is within the claimed range (e.g., 9 to 20 times).

However, in this regard, Matsumoto teaches stretching to improve mechanical strength and change physical properties (see col. 1, lines 15-27). As such, Matsumoto recognizes that the area ratio between the non-stretched sheet and the biaxially stretched film is a result-effective variable. Since the area ratio between the non-stretched sheet and the biaxially stretched film is a result-effective variable, one of ordinary skill in the art would have obviously been motivated to determine the optimum area ratio between the non-stretched sheet and the biaxially stretched film applied in the process of Matsumoto through routine experimentation based upon reaching increased mechanical strength.

Matsumoto does not teach blending inorganic particles into a melt comprising a polylactic-acid-based material or forming interconnected microvoids.

Laney teaches making a layer of polyester film using a mixture of microbeads made of inorganic material and performing biaxial stretching (blending void initiating

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particles into a melt; extruding said materials to form a layer of material containing inorganic particles by extrusion; stretching the sheet biaxially ... to form interconnected microvoids around the inorganic particles, thereby obtaining a permeable microvoided sheet that is a monolayer film of polylactic acid based material) (see col. 2, lines 35-61; col. 4, lines 22-26; col. 11, lines 31-43, and col. 12, lines 23-27). Laney teaches using voiding agents to an extent greater than 30% by volume (wherein the void initiating particles are employed in an amount of 30-50% by volume in feedstock) (see col. 15, lines 30-32).

It would have been obvious to use Laney's teaching for using microbeads in the polyester material taught by Matsumoto because of the absorbency properties which efficiently absorb printed inks without the need of multiple processing steps or multiple coated layers (see Laney col. 2, line 62 through col. 3, line 1). The film would have a total adsorbent capacity of at least about 14 cc/m² principally because is it made by the same process as claimed.

With respect to Claim 21, Matsumoto's film is stretched from 55-80 degrees C, which overlaps the claimed range of under 75 degrees C (see col. 2, lines 49-54).

With respect to Claim 22 and 23, Laney's inorganic microbeads are sized within the range of 0.01-10 μ (0.01-10 micrometer), which includes the claimed diameter range of 0.1-1 micrometer and 0.1 – 0.6 micrometer (see col. 4, lines 23-31).

With respect to Claim 24, Matsumoto teaches an example of a film made to a thickness of 100-200 μ m, which reads on the claim of 25-400 μ m (see col. 3, lines 17-21).

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With respect to Claim 25, Laney teaches at least two ranges of the proportion of inorganic particles to use. Example 4 teaches calcium carbonate used as the inorganic particle and, via indicating that organic and inorganic particles are interchangeable to perform the invention, at 45% by weight (wherein the void initiating particles are inorganic particles that make up from about 45 to about 75 weight % of the total weight) (see col. 14, lines 40-45 and col. 13, lines 52-60). Moreover, Laney teaches using microbeads (inorganic particles) to an extent greater than 30% by volume, which would necessarily include the upper range of the claimed 45-75% by weight (see col. 15, lines 30-32).

With respect to Claim 26, Laney specifically teaches using barium sulfate, calcium carbonate, silica, and alumina, which read on the claim (col. 4, lines 27-31).

With respect to Claim 29 and 30, Matsumoto teaches simultaneous biaxial stretching (stretched in both directions simultaneously) and successive biaxial stretching (sequentially stretched in a machine direction first followed by a transverse direction) (see Abstract).

It would have been obvious to one of ordinary skill at the time of the invention to pick one of the directions to perform stretching in the machine direction first (machine) before the second direction (transverse).

Response to Arguments

Applicant's arguments filed 29 September 2006 have been fully considered but they are not persuasive.

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Applicant argues with respect to an anticipated rejection utilizing Morita.

Applicant's arguments appear to be on the grounds that:

1) Morita fails to disclose a film with the claimed absorbency. Applicants have found that such a film requires biaxial stretching at high loadings of void initiators.

The Applicant's arguments are addressed as follows:

1) Applicant's arguments with respect to rejections utilizing Morita have been considered but are moot in view of the new ground(s) of rejection.

Moreover, the sheet would necessarily be microvoided and have a total adsorbent capacity of at least about 14 cc/m² principally because it is made by the same process as claimed.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Butler whose telephone number is (571) 272-8517. The examiner can normally be reached on Mo.-Th. 7:30 a.m. - 5 p.m. and alternating Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Patrick Butler
Assistant Examiner
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SUPERVISORY PATENT EXAMINER
12/11/02